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**TYPE SYSTEM FOR REPRESENTING AND CHECKING CONSISTENCY OF
HETEROGENEOUS PROGRAM COMPONENTS DURING THE PROCESS
OF COMPILATION**

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ABSTRACT

A representation of types, type-checker, method and compiler are provided for checking consistency in various forms of an intermediate language. Specifically, the typed intermediate language is suitable for use in representing programs written in multiple (heterogeneous) source languages including typed and untyped languages, loosely and strongly typed languages, and languages with and without garbage collection. An unknown type representation indicates that an element of the intermediate language is associated with an unknown type. A method of type-checking a code segment written in a programming language is provided using a rule set that contains rules for type-checking an unknown type. The unknown type allows for selectively retaining type information as the compilation process continues and allows multiple programming languages to be type-checked by the same type system.